

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



Medical Factual Memorandum for Record

September 17, 2024

A. CASE

NTSB ID: ERA24FA026
Location: Marion, Ohio
Date: October 31, 2023

B. MEDICAL SPECIALIST

Specialist Turan Kayagil, MD, FACEP
National Transportation Safety Board
Washington, DC

C. DETAILS

1.0 Description of Review

For purposes of evaluating the pilot and pilot-rated passenger for potentially impairing substances and potentially impairing medical conditions, the above Medical Specialist reviewed the following sources of medical information, along with selected relevant regulation, medical literature, and investigator reports.

- Final Federal Aviation Administration (FAA) medical case review
- Autopsy report - pilot
- Toxicology report - pilot
- Autopsy report - pilot-rated passenger
- Toxicology report - pilot-rated passenger

2.0 Summary of Medical Facts

2.1 Pilot

The 71-year-old male pilot's last aviation medical examination was November 21, 2022. At that time, he reported 32,831 total civilian flight hours. He reported using the medications atorvastatin and aspirin. His past medical history included high cholesterol. He was issued a second-class medical certificate limited by a requirement to have available glasses for near vision.

The Lucas County Coroner's Office performed the pilot's autopsy at the request of the Marion County Coroner. According to the pilot's autopsy report, his cause of death was multiple blunt force injuries and thermal burns, and his manner of death was accident. Autopsy evaluation for natural disease was limited by the extent of the pilot's injuries; his heart and brain were unavailable for examination and his lungs were fragmented. Within these limitations, no significant natural disease was identified. No soot was identified in the distal airways. The trachea was examined visually and microscopically. The tracheal mucosa was hyperemic with irregular deposits of thermal residue but without clearly identified soot deposits; the coroner noted that there was no histologic evidence of thermal damage or soot in the airway.

At the request of the Lucas County Coroner Forensic Toxicology Laboratory, NMS Labs performed postmortem toxicological testing of liver tissue from the pilot. According to the Lucas County Coroner Forensic Toxicology report accompanying the autopsy report, estimated carboxyhemoglobin was calculated to be below 1%, which is within normal.¹ No other tested-for substances were detected. The FAA Forensic Sciences Laboratory also performed postmortem toxicological testing of specimens from the pilot. Atorvastatin was detected in liver and muscle tissue. No blood was available for testing.

Atorvastatin is a prescription medication commonly used to control cholesterol and reduce cardiovascular risk. Atorvastatin is not generally considered impairing.

2.2 Pilot-Rated Passenger

The 70-year-old male pilot-rated passenger's last aviation medical examination was December 5, 2022. At that time, he reported 33,000 civilian flight hours. He reported using the medications warfarin, amlodipine, fenofibrate, carvedilol, atorvastatin, and aspirin. He reported a history of seasonal allergies, aortic valve insufficiency with aortic valve replacement in 2020 and associated mini-stroke

¹ Carboxyhemoglobin is a marker of carbon monoxide exposure. Nonsmokers normally have carboxyhemoglobin levels of less than 1-3%, while heavy smokers may have levels as high as 10-15%. Excessive carbon monoxide exposure may be caused by inhalation of smoke or exhaust fumes. The estimated carboxyhemoglobin calculation using tissue is based on carbon monoxide and iron measurements and generally is an underestimate due to limitations of the technique.

(transient ischemic attack, or TIA), high blood pressure, and sleep apnea treated with a continuous positive airway pressure (CPAP) machine. His medical history also included 2013 bladder cancer with excision and no recurrence, chronic kidney disease, paroxysmal atrial fibrillation, and left middle cerebral artery stroke. Although he had held Authorization for Special Issuance of medical certification in the past, he had received Final Denial of third-class medical certification in 2021 for cardiac valve replacement, paroxysmal atrial fibrillation, ischemic stroke, and treatment with medication. His most recent aviation medical examination also resulted in denial of his application for third-class medical certification. On October 14, 2023, he was issued a Final Denial for TIA, paroxysmal atrial fibrillation, cardiac valve replacement, and sleep apnea with CPAP.

The Lucas County Coroner's Office performed the pilot-rated passenger's autopsy at the request of the Marion County Coroner. According to the pilot-rated passenger's autopsy report, his cause of death was multiple blunt force injuries and thermal burns, and his manner of death was accident. Autopsy evaluation for natural disease was limited by the extent of the pilot-rated passenger's injuries; his heart, brain, and trachea were unavailable for examination and his lungs were fragmented. No soot was identified in the distal airways. Moderate aortic atherosclerosis was identified, as was a bioprosthetic heart valve.

At the request of the Lucas County Coroner Forensic Toxicology Laboratory, NMS Labs performed postmortem toxicological testing of liver tissue from the pilot. According to the Lucas County Coroner Forensic Toxicology report accompanying the autopsy report, estimated carboxyhemoglobin was calculated to be below 1%, which is within normal.¹ No other tested-for substances were detected. The FAA Forensic Sciences Laboratory also performed postmortem toxicological testing of specimens from the pilot. Atorvastatin, loratadine, desloratadine, and warfarin were detected in liver and muscle tissue. Carvedilol was detected in muscle tissue and not in liver tissue. No blood was available for testing.

Atorvastatin is a prescription medication commonly used to control cholesterol and reduce cardiovascular risk. Loratadine is a non-sedating antihistamine medication that is available over the counter and can be used to treat allergy symptoms and hives. Desloratadine is an active metabolite of loratadine and is available as a prescription medication with similar uses as loratadine. Warfarin is a prescription blood thinning medication commonly used to help prevent stroke in atrial fibrillation. Carvedilol is a prescription medication that can be used to treat high blood pressure and heart failure. Atorvastatin, loratadine, desloratadine, warfarin, and carvedilol are not generally considered impairing.

Submitted by:
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Medical Officer